Scope of Work
Electrical pipe works
U.S. Embassy Compound
Dili, Timor-Leste

Dec. 12, 2019

Introduction

The U.S. Embassy in Dili, Timor-Leste require the services of a local contractor to perform the below Scope of Work for the handhole and underground conduit installation. The embassy will handle all the contract legal requirements with local contractor. DS/FSE/PME (hereafter referred to as PME – Project Management and Engineering branch) will provide the design drawings and scope of work.

This document outlines the scope of work and specifications for the local contractor as follows:

1. GENERAL

1.A. DESIGN DRAWINGS AND SPECIFICATIONS

PME will provide the design package and specifications for the handhole and underground conduit installations. It is the local contractor's responsibility to review and understand the work involved and what is required to complete the project. If any error or inconsistencies are found on the drawings, local contractor will bring these to the attention of the Contracting Officer's Representative (COR) and/or PME.

Local contractor will install the infrastructure for the handholes and underground conduit as outlined in this drawing package.

Local contractor shall have a resident registered/certified/licensed civil engineer or graduate architect on site or a qualified construction supervisor at all times, who should have at least two years experience in similar work and can speak, write and read English at a moderate or higher level. Local contractor shall submit the curriculum vitae of the resident engineer to the COR for approval.

Local contractor will provide a detailed project schedule, with start and end dates for work activities and stating a critical path.

Local contractor will provide the embassy compound with weekly work progress reports and construction schedule updates during the duration of the project.

The COR will have final approval of all work performed by local contractor.

1.B. MATERIALS

1.B.1. PME PROVIDED MATERIALS

PME will provide all materials for this contractor's package except for the sand, gravel, concrete, asphalt and other materials for restoration works.

1.C. DESIGN CRITERIA

1.C.1. RISK CATEGORY

1. OFFICE AND UTILITY BUILDINGS III

2. ALL OTHER BUILDINGS II

1.C.2. WIND CRITERIA

1. ULTIMATE DESIGN WIND SPEED

A. RISK CATEGORY III 61 m/s (136 MPH)
B. RISK CATEGORY II 57 m/s (128 MPH)

2. EXPOSURE C

1.C.3. SEISMIC CRITERIA

1. MAPPED SPECTRAL RESPONSE ACCELERATIONS

A. SHORT PERIOD, S/S 2.40

B. 1-SECOND PERIOD, S/1 1.13

2. SEISMIC IMPORTANCE FACTOR

A. OFFICE AND UTILITY BUILDINGS 1.25

B. ALL OTHER BUILDINGS 1.00

3. SITE CLASS D

4. DESIGN SPECTRAL RESPONSE COEFFICIENTS

A. SHORT PERIOD, S/DS 1.46

B. 1-SECOND PERIOD, S/D1 0.874

5. SEISMIC DESIGN CATEGORY E

6. SEISMIC REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS

A. COMPONENT IMPORTANCE FACTOR, I/P 1.0

1.D. SITE AND SAFETY REQUIREMENTS

1.D.1. SITE INSTALLATION OVERSIGHT

A security installation supervisor representing PME will be on site to provide design installation oversight for all work in this contractor's package.

The contractor will be responsible for managing and supervising all activities undertaken by local contractor.

The installation contractor will be responsible for providing post approved, security escorts for all local contractor personnel.

1.D.2. SITE PREPARATION

Local contractor will be responsible for cleaning and removing all debris from the embassy compound to the nearest authorized dump facility (authorized by the town). the areas affected by local contractor's work must be returned back to pre-construction conditions after the work is completed. (e.g. grass, gravel, sidewalk, landscaping, asphalt etc.)

Local contractor shall limit the site disturbance to a maximum 6 feet (1829 mm) on each side of trench. excavated material will be placed next to the excavated area to be used as select backfill.

1.D.3. SITE SAFETY

The excavation work zone must be clearly marked with warning signs and yellow plastic safety tape fixed to wood posts. local contractor must comply with all applicable safety standards to protect the embassy compound employees, the public and local contractor workers from injuries and accidents. local contractor will be held liable for injuries or accidents sustained due to negligence by local contractor during the course of this project.

1.D.3.1SAFETY REQUIREMENTS AND SUBMITTALS

Within 3 days after receiving the Notice to Proceed letter, contractor to submit a written safety plan covering all the facets of the project.

Contractors will report accidents to the COR.

Personal Protective Equipment (PPE)

Contractors are required to comply with the following provisions:

1. Protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be used wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

2. Each affected employee shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

3. Each affected employee shall use appropriate respiratory protection when potentially exposed to air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors

and when such hazards cannot be reduced or eliminated by effective engineering controls.

4. Each affected employee shall wear protective helmets when working in areas where there is a potential for injury to the head from falling objects. Protective helmets shall also be worn to reduce electrical shock hazards when near expose electrical conductors which could contact the head.

5. Each affected employee shall wear protective footwear when working in areas where there is a danger of foot injuries due to falling and rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.

6. Each affected employee shall wear protective ear wear whenever noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 80 decibels and when engineering controls cannot reduce or eliminate the hazard.

7. Each affected employee shall wear protective gloves when working in areas where hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

8. Contractors shall provide training and upon completion, each employee shall be tested, and Certified in writing by the trainer. If at any time the trained employee changes work activities requiring different PPE, or exhibits lack of understanding of the required PPE, the employee shall be retrained and re-certified.

Hand and power tool safety

Contractors are required to:

1. Ensure the safety of tools and equipment used by its employees.
2. Inspect at regular intervals and maintain in good repair all tools in accordance with the manufacturers' specification.
3. Ensure that all operating and moving parts operate and are clean.
4. Require that appropriate personal protective equipment be worn for hazards that may be encountered while using portable power tools and hand tools.
5. Ensure that tools are used for their intended purposes.
6. Ensure that all employees receive instruction on regulations and the safe use of each power tool.
7. Provide owners' manuals including manufacturer's specifications and suggested work practices and make available upon request to all employees required to use the equipment.

1.D.4. PROTECTION OF THE EMBASSY COMPOUND EQUIPMENT

Local contractor must make sure that the embassy compound equipment and property in the work zone or surrounding areas are protected to prevent them from getting damaged during construction. Should any repair or change have to be done due negligence by local contractor or its workers, local contractor will be responsible for the costs incurred in the repair.

1.D.5. THE EMBASSY COMPOUND SECURITY REQUIREMENTS

1.D.5.1 The work to be performed under this contract requires that the Contractor, its employees and sub-contractors shall be cleared by Embassy Security and submit corporate, financial and personnel information for review by the Embassy. Information submitted by the Contractor will not be disclosed beyond the Embassy.

1.D.5.2 The Contractor shall submit this information including construction vehicle requirements within 10 days after Award of Contract.

1.D.5.3 The Contractor's foreign workers shall have proper and valid working documents. A copy of working visa/residence permit for each foreign worker shall be submitted to the COR for security processing.

2. INFRASTRUCTURE SUPPORT SYSTEM

2.A. HANDHOLE/UNDERGROUND CONDUIT SYSTEM

2.A.1. TRENCH

Local contractor will verify existing utilities and provide as-built drawings prior to excavating of trench. if the excavation work interferes with drain or piping, the local contractor shall inform the embassy compound and provide suitable protection for these structures prior to proceeding with the work. IF excavation cannot proceed due to existing obstacles then the COR and or the PME construction supervisor will provide a new conduit route.

All trenches will be excavated to the required depth according to specifications and conduit type as shown on drawings.

Local contractor must keep all debris and excavated material clear of service network drains, covers and sumps near the trenches, to prevent clogs or damage.

Install warning and safety signs to alert pedestrians and vehicle traffic of construction of trench.

Install barricade lines to cordon off work area around trench.

Dispose of excavated material that will not be used to backfill trench.

2.A.2. HANDHOLE (WITH DRAINAGE)

New lockable handholes will be installed by the local contractor as specified on detail drawings.

All new handhole(s) will be installed when conduit runs exceed 180 degrees or at 200ft and will have proper drainage.

Local contractor will make hole penetrations to the existing manholes according to number of conduits entering and exiting the manhole.

The base of the handhole(s) shall be placed over base consisting of crushed non-porous rock base or gravel and sand. the gravel size shall not exceed 1/2 inch (13mm).

2.A.3. CONDUIT

All existing conduit should be left in place.

All new exterior conduit along perimeter wall or fence to be mounted at the base of the wall unless specified on the drawings.

Under grass, dirt, sidewalk or asphalt, install schedule 80 pvc conduit 24 inches (610mm) below finish grade to the top of the conduit as specified on the drawings.

All underground 90 degree bends with a 12 inch (305mm) radius shall be made with pre-fabricated 90 degree sweeping bend.

All underground conduit shall be converted from schedule 80 PVC to RGS five feet before transitioning above ground using PVC to RGS couplers.

Local contractor shall leave a pull line in all installed conduit paths.

Local contractor will install the conduit from the handhole to handhole or the exterior pull box as shown on drawings.

All conduit stubbed and capped above the ground shall be at a height of no less than 12" (305mm) from the ground. When the stubbed conduit is near a wall or pole it must be at a least 2" (51mm) from the wall or pole to allow for box mounting.

Restoration Works

2.A.5. CONCRETE

Local contractor will provide labor and materials to repair concrete where disturbed. concrete color, type and thickness shall match existing.

Concrete used shall be 25mpa.

Concrete may not be poured if weather conditions do not permit.

Approval from the security installation supervisor must be obtained 24 hours prior to pouring of concrete. the embassy compound and local contractor crew supervisor must be present during the pouring of concrete.

CONCRETE PLACEMENT

Comply with requirements and with recommendations in aci 304r for measuring, mixing, transporting, and placing concrete.

Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. use equipment and procedures to consolidate screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.

CONCRETE FINISHING

GENERAL: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.

FLOAT FINISH: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. refloat surface immediately to uniform granular texture

- BURLAP FINISH: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.

- MEDIUM-TO-FINE-TEXTURED BROOM FINISH: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

- MEDIUM-TO-COARSE-Textured broom finish: provide a coarse finish by striating float-finished concrete surface 1/16-inch (1.6mm) to 1/8-inches (3mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

2.A.5.1 Asphalt

- Remove and dispose from site demolished asphalt
- Prepare compacted gravel base and prime with tack coat
- Lay and compact 50 mm thick hot asphalt mix to the same level of the existing pavement. The compaction of the new asphalt layer shall be held immediately after the hot mix has been placed and only during the first pass of roller will be allowed to rectifiy any irregularities in the finish. Use smooth cylindrical rollers and pneumatic tires rollers.

2.A.6. SOIL MATERIALS

Select backfill: ASTM D 2487 soil classification groups sw, sp, and sm, or a combination of these groups; free of rock or gravel larger than 3-inches (75mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

(asphalt/concrete) base course: naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; astm d 2940; with at least 95 percent passing a 1-1/2-inch (40mm) sieve and not more than 8 percent passing a 1/4-inch (6.4mm) sieve.

BASE GRAVEL: naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; astm d 2940; except with 100 percent passing a 1-inch (25mm) sieve and not more than 8 percent passing a 1/4-inch (6.4mm) sieve.

SAND CUSHION: ASTM c 33; fine aggregate, natural, or manufactured sand.

COMPACTION OF SOIL BACKFILLS AND FILLS

Place backfill and fill soil materials in layers not more than 8-inches (203mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches (102mm) in loose depth for material compacted by hand-operated tampers.

Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

- Under structures, building slabs, steps, and pavements, scarify and re-compact top 11-inches (280mm) of existing sub grade and each layer of backfill or fill soil material at 95 percent.

- Under walkways, scarify and re-compact top 6-inches (152mm) below sub grade and compact each layer of backfill or fill soil material at 92 percent.

- Under lawn or unpaved areas, scarify and re-compact top 6-inches (152mm) below sub grade and compact each layer of backfill or fill soil material at 85 percent.

- For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

End Of SOW